

Notice of Allowability

Application No.	Applicant(s)	
10/531,088	HIGANO ET AL.	
Examiner	Art Unit	
Robert J. Sandy	3677	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. This communication is responsive to the amendment filed on 4/19/2007 and Examiner's amendment of 7/11/2007.
2. The allowed claim(s) is/are 10-23.
3. Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some* c) None of the:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
(a) including changes required by the Notice of Draftperson's Patent Drawing Review (PTO-948) attached
 1) hereto or 2) to Paper No./Mail Date _____.
(b) including changes required by the attached Examiner's Amendment / Comment or in the Office action of
 Paper No./Mail Date _____.
Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. Notice of References Cited (PTO-892)
2. Notice of Draftperson's Patent Drawing Review (PTO-948)
3. Information Disclosure Statements (PTO/SB/08),
 Paper No./Mail Date _____
4. Examiner's Comment Regarding Requirement for Deposit
 of Biological Material
5. Notice of Informal Patent Application
6. Interview Summary (PTO-413),
 Paper No./Mail Date included wit.
7. Examiner's Amendment/Comment
8. Examiner's Statement of Reasons for Allowance
9. Other approved draw'g sheet.

Robert J. Sandy
Primary Examiner
Art Unit: 3677

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Terrence Chapman (Reg. No. 32,549) on 11 July 11, 2007.

The application has been amended as follows:

Claims 12, 14, 15, 19, 21 and 22 have been amended in the following final form:

Claim 12. (amended) A two-shaft hinge according to Claim 10, wherein the torque unit on the opening/closing shaft comprises units at two or more locations, the units generating a frictional torque by a repulsive force of the second spring at the abutting cam faces by abutting the second rotary cam capable of rotation and the second fixed cam that is movable in an axial direction and rotates in unison with the opening/closing shaft and engaging the second fixed cam and the second rotary cam through the opening/closing shaft.

Claim 14. (amended) A two-shaft hinge according to Claim 10, wherein in order to generate a click action at a specified position during the rotational movement of the rotary shaft and the opening/closing movement of the opening/closing shaft, a mechanism that generates a click action is provided comprising a projection provided on each of the fixed cams and a recess provided in each of the first and second rotary cams on the shafts for generating torque and abutment of each projection on each of the fixed cams and the recess in each of the rotary cams, or by adding an abutment location of a projection on the rotary shaft and a recess in the opening/closing shaft.

Claim 15. (amended) A two-shaft hinge according to Claim 10, wherein the rotary shaft and the opening/closing shaft respectively have a cross-section formed to be a cross-section other than circular at a sliding location of their respective fixed cams so that the respective fixed cams integrally rotates with respective shafts while sliding.

Claim 19. (amended) A two-shaft hinge according to Claim 17, wherein the opening/closing torque unit of the opening/closing shaft comprises units at two or more locations, the units generating a frictional torque by a repulsive force of the second spring at abutting cam faces by abutting the second rotary cam capable of rotation and the second fixed cam that is movable in an axial direction and rotates in unison with the opening/closing shaft and engaging the second fixed cam and the second rotary cam through the opening/closing shaft.

Claim 21. (amended) A two-shaft hinge according to Claim 17, wherein in order to generate a click action at a specified position during the rotational movement of the rotary shaft and the opening/closing movement of the opening/closing shaft, a mechanism that generates a click action is provided comprising a projection provided on each of the and a recess provided in each of the first and second rotary cams on the shafts for generating torque and abutment of each projection on each of the fixed cams and the recess in each of the rotary cams, or by adding an abutment location of a projection on the rotary shaft and a recess in the opening/closing shaft.

Claim 22. (amended) A two-shaft hinge according to Claim 17, wherein the rotary shaft and the opening/closing shaft respectively have a cross-section formed to be a cross-section other than circular at a sliding location of their respective fixed cams so that the respective fixed cams integrally rotates with respective shafts while sliding.

EXAMINER'S COMMENT

In view of applicant's newly submitted claims 10-23 in the reply filed on 19 April 2007, the amendments to claims 12, 14, 15, 19, 21 and 22, via the Examiner's amendment set forth herein, and the applicant's remarks, which are incorporated as the reasons for allowance, being summarized on page 13 beginning with the first paragraph pertaining to the applied reference to Kang et al. not showing the claimed "rotation limiting mechanism comprising a first rotation limiting plate on the rotary shaft and a second rotation limiting plate on the opening/closing shaft which abut each other directly and the second plate limiting the rotation of the rotary shaft depending on the opening/closing angle range of the opening/closing shaft", and on page 14 such that the hinge shaft of Kang et al. "does not work on the housing having the groove 117 to limit the rotational movement of the rotary shaft", claims 10-23 are in condition for allowed. Therefore, all objections and rejections indicated in the prior Office action each have been withdrawn. The substitute Specification, Abstract, and Replacement Drawing sheet, filed with the reply, each have been approved for entry.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert J. Sandy whose telephone number is 571-272-7073. The examiner can normally be reached on M-F (7:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, J.J. Swann can be reached on 571-272-7075. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



ROBERT J. SANDY
PRIMARY EXAMINER

Robert J. Sandy
Primary Examiner
Art Unit 3677

Title: TWO-SHAFT HINGE EQUIPPED WITH A ROTATION LIMITING MECHANISM
Inventors: Sakae HIGANO et al
Serial No.: 10/531 088
Docket No.: 4700.P0311US
Replacement Sheet

12/12

FIG. 15

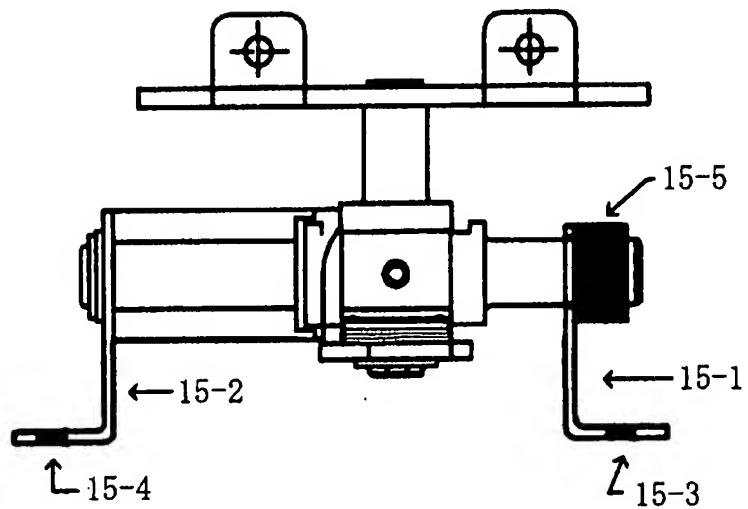
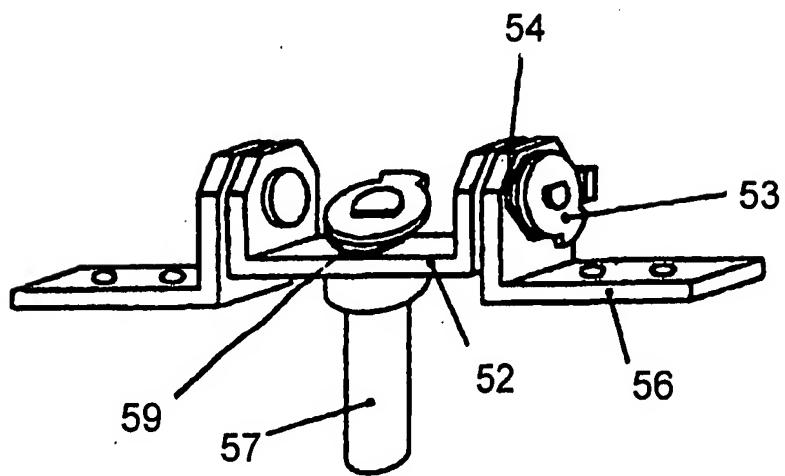


FIG. 16 (PRIOR ART)



Approved/Released by: J. J. 7/6/2007

